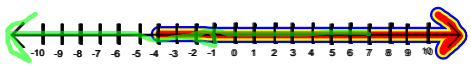
1-6 Solving Compound and Absolute Value Inequalities

AND conjunction intersection ∩

OR disjunction union ∪

$-4 \leq x \leq 7$



$x \leq -3$ OR $x \geq 6$

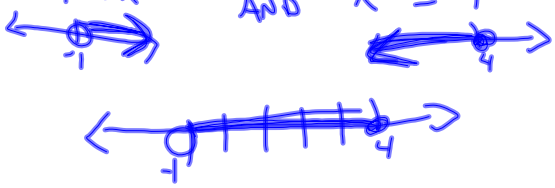
ex:

$-9 < 3(x-2) \leq 6$

$-9 < 3(x-2)$ AND $3(x-2) \leq 6$

$-3 < (x-2)$ $\quad x-2 \leq 2$

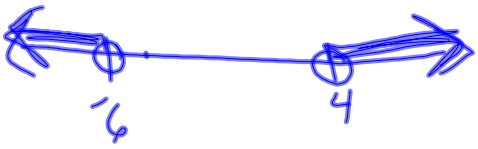
$-1 < x$ AND $x \leq 4$



ex $\frac{y}{3} - 7 < -9$ or $\frac{y+6}{2} > 5$

$\frac{y}{3} < -2$ $\quad y+6 > 10$

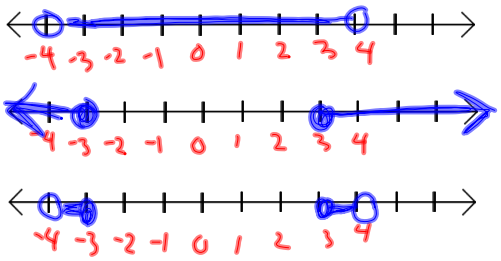
$y < -6$ $\quad y > 4$



FUN!

ex:

$-7 < 2x + 1 < 9$ And $[x - 1 \geq 2$ Or $2 - x \geq 5]$



Absolute Value and Order

Less Th**AND**

Great**OR** than

ex:

$|x - 5| \leq 3$ AND $-(x-5) \leq 3$, $x - 5 \geq -3$

$x - 5 \leq 3$ AND $x - 5 \geq -3$

$x \leq 8$ $\quad x \geq 2$

ex:

$-3|a + 1| \leq -15$

$-(a+1) \geq 5$

$|a+1| \geq 5$ OR

$a+1 \geq 5$ OR $a+1 \leq -5$

$a \geq 4$ $a \leq -6$

ex:

$|2x| < -6$

$\emptyset$

$2x < -6$ AND $2x > 6$

$x < -3$ $x > 3$

No intersection

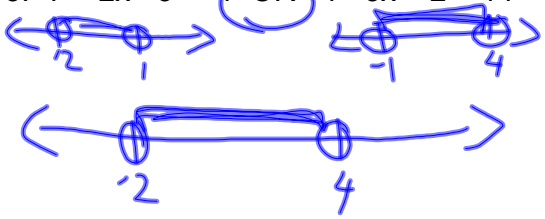
Do:

1. $|1.5x + 6| \geq 3$

$\frac{3}{2}x \leq -9$ -4 -2

2. $|2x + 1| \leq 5$

3. $-7 < 2x - 3 < -1$ OR $-1 < 3x + 2 < 14$



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